

Propellant Handler's Ensemble (PHE) Aka Self-Contained Atmospheric Protective Ensemble (SCAPE), Ventilator Improvement Study Project

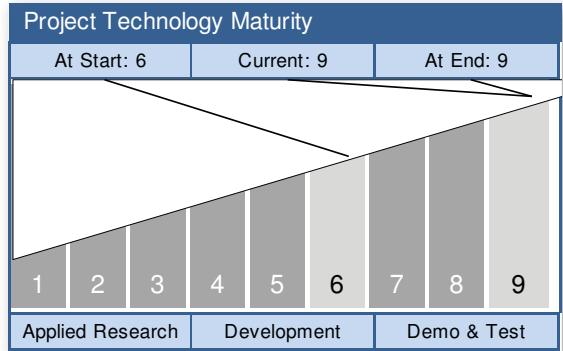
Center Independent Research & Developments: KSC IRAD Program
Office Of The Chief Technologist (OCT)

National Aeronautics and Space Administration



ABSTRACT

The overall objective for this project is to evaluate two candidate alternatives for the existing Propellant Handler's Ensemble (PHE) escape ventilator.



Technology Area: Ground & Launch Systems Processing TA13
(Primary)
Human Health, Life Support & Habitation Systems
TA06 (Secondary)

ANTICIPATED BENEFITS

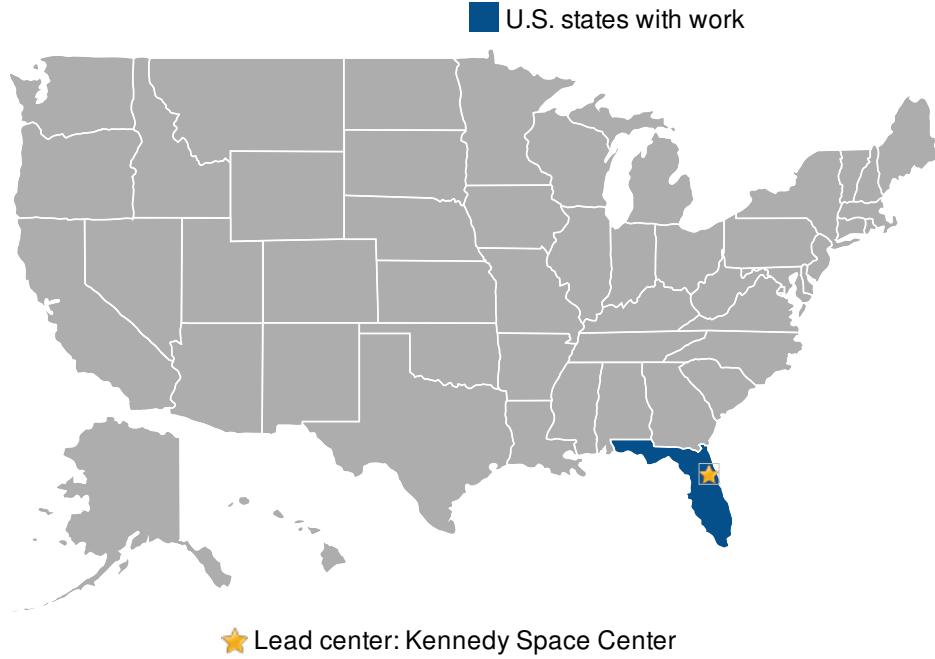
To NASA funded missions:

Improved Hazardous Operations Ground Processing

To NASA unfunded & planned missions:

New ventilator design reduces physical stress on users while improving safety when performing transfers from one location to another in Propellant Handlers Ensemble suits.

Read more on the last page.



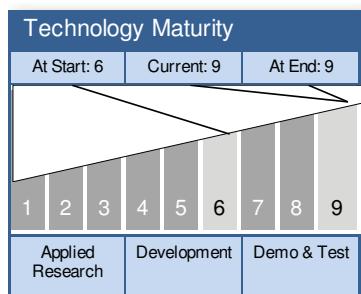
DETAILED DESCRIPTION

The new candidate ventilators use newer technology with similar quantities of air at approximately half the weight of the current ventilator. Ventilators are typically used to ingress/egress a hazardous work area when hard line air is provided at the work area but the hose is not long enough to get the operator to and from the staging area to the work area. The intent of this test is to verify that the new ventilators perform as well as or better than the current ventilators in maintaining proper oxygen (O₂) and carbon dioxide (CO₂) levels in the PHE during a typical use for the rated time period (~10 minutes). We will evaluate two new units comparing them to the existing unit. Subjects will wear the Category I version of the Propellant Handler's Ensemble with the rear suit pouch snapped.

MANAGEMENT
Program Manager:
Nancy Zeitlin
Project Manager:
Nancy Zeitlin
Principal Investigator:
David Bush

TECHNOLOGY DETAILS

Propellant Handler's Ensemble (PHE) aka Self-Contained Atmospheric Protective Ensemble (SCAPE), Ventilator Improvement Study



TECHNOLOGY DESCRIPTION

The new candidate ventilators use newer technology with similar quantities of air at approximately half the weight of the current ventilator. Ventilators are typically used to ingress/egress a hazardous work area when hard line air is provided at the work area but the hose is not long enough to get the operator to and from the staging area to the work area. The intent of this test is to verify that the new ventilators perform as well as or better than the current ventilators in maintaining proper oxygen (O₂) and carbon dioxide (CO₂) levels in the PHE during a typical use for the rated time period (~10 minutes). We will evaluate two new units comparing them to the existing unit. Subjects will wear the Category I version of the Propellant Handler's Ensemble with the rear suit pouch snapped.

This technology is categorized as a hardware system for other applications

- Technology Area
 - TA13 Ground & Launch Systems Processing (Primary)
 - TA06 Human Health, Life Support & Habitation Systems (Secondary)

CAPABILITIES PROVIDED

Improved ventilator capability and less weight.

Tests showed new ventilators performed as expected. Ventilators were procured and are now in service supporting Cat IV SCAPE operations at KSC.